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10 July 1980

Worldwide Report

LAW OF THE SEA

No. 123

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CONTENTS

WORLDWIDE AFFAIRS

Japan, U.S., USSR, Others Sign Antarctic Resources Treaty (Various sources, various dates).....	1
Marine Life Treaty Melbourne Radio Report	
French Company Allowed Oil Search in SRV-Indonesian Waters (AFP, 19 May 80).....	2

ASIA

INTER-ASIAN AFFAIRS

SRV Meeting With Indonesia on Continental Shelf Demarcation (Hanoi Domestic Service, 21 May 80).....	3
Briefs Move Against longliners	4

AUSTRALIA

Economic Squeeze Hits Study of Offshore Resources (THE WEEKEND AUSTRALIAN, 24-25 May 80).....	5
Taiwanese Clam Boat Sailors Absolved From Poaching Charges (THE COURIER-MAIL, 16 May 80).....	6
Briefs Snapper Fishing Controls	7

INDIA

Agency To Coordinate Maritime Policy Advocated
(THE HINDU, 23 Apr 80)..... 8

MALAYSIA

Minister on Foreign Fishing Within Economic Zone
(Kuala Lumpur International Service, 21 May 80)..... 9

NEW ZEALAND

Briefs
Call for Controls 10

EASTERN EUROPE

INTERNATIONAL AFFAIRS

CEMA Countries Sign Fishing Cooperation Protocol
(Havana Domestic Service, 24 May 80)..... 11

LATIN AMERICA

INTER-AMERICAN AFFAIRS

Pindling Rejects Allegations by Cuba on Boat Incident
(Various sources, various dates)..... 12

Violates Bahamian Waters
Jamaican UN Support Asked, by Gladstone Thurston
Boat Taken to New Providence

NEAR EAST AND NORTH AFRICA

ISRAEL

Briefs
May Expand Territorial Waters 14

SUB-SAHARAN AFRICA

SENEGAL

EEC Fishing Agreement Being Well Implemented
(P. M. SENE; LE SOLEIL, 2 Jun 80)..... 15

SEYCHELLES

Aircraft To Protect Territorial Waters Purchased
(NATION, 16 Jun 80)..... 17

SOMALIA

Briefs
Fishing Cooperation With Italy 19

WEST EUROPE

INTERNATIONAL AFFAIRS

Professor Urges Norway Grant Iceland Jan Mayen Rights
(Nils Orvik; AFTENPOSTEN, 11 Apr 80)..... 20

NORWAY

Fishing Industry Seeks To Adjust To Leaner Decade Ahead
(Alf. G. Andersen; AFTENPOSTEN, 14, 16 Apr 80)..... 23

Briefs
Svalbard Fishing Regulations 35

WORLDWIDE AFFAIRS

JAPAN, U.S., USSR, OTHERS SIGN ANTARCTIC RESOURCES TREATY

Marine Life Treaty

OW210603 Tokyo KYODO in English 0353 GMT 21 May 80

[Text] Sydney, May 20 KYODO--Representatives of 15 nations including Japan, the U.S. and Soviet Union on Tuesday initialed a treaty to preserve marine life resources of the Antarctic. The 33-article treaty worked out jointly by the 13 signatories of the Antarctic treaty and East and West Germany was designed to promote the development of the krill, a shrimp-like crustacean living in Antarctic waters which is considered a valuable future protein source for human consumption. Japan was represented at the meeting in Canberra by Misuo Kuroda, ambassador to Australia.

Under the Antarctic treaty, signed in December 1959, the 13 nations agreed to refrain from exercising territorial claims and banned nuclear testing and other military activities during the treaty's 30-year term. The new treaty will go into force after it is ratified by the nations who initialed it Tuesday. Informed sources said the current volume of krill in the Antarctic is estimated at some 1 billion tons. Japan is the second largest catcher of krill next to the Soviet Union, taking some 22,000 tons in 1977-8, and 37,500 tons in 1978-9, they said.

Melbourne Radio Report

OW230428 Melbourne Overseas Service in English 1130 GMT 20 May 80

[Text] An international conference on Antarctica has ended in Canberra with the signing of a convention aimed at conserving the living resources in the seas around the **polar** region. A Radio Australia reporter at the conference says that the convention places the conservation of Antarctica's marine life ahead of exploitation.

The nations at the conference, including the 13 signatories to the Antarctic treaty, earlier agreed to establish an international commission with its headquarters in Hobart, in Tasmania, to oversee the conservation of Antarctic marine life. Our reporter says that when harvesting does take place it will be with the advantage of new scientific knowledge which should insure the survival of the various species.

The meeting, which drew up the detailed wording of the convention, was a marathon session lasting until 6 o'clock in the morning. Our reporter understands that the Soviet Union and East European countries were not happy that the European Economic Community should be a party to the convention. He quotes one delegate as saying that overall acceptance of the draft came only after concessions by all sides.

WORLDWIDE AFFAIRS

FRENCH COMPANY ALLOWED OIL SEARCH IN SRV-INDONESIAN WATERS

BK200847 Hong Kong AFP in English 1630 GMT 19 May 80

[Text] Jakarta, 19 May (AFP)--The French oil company Total Indonesia today signed in Jakarta a contract for exploration in the disputed Natuna Islands area in the South China Sea. Total Indonesia, the Indonesian subsidiary of La Compagnie Francaise des Petroles (CFFP) became the sixth foreign and the first non-American oil company to be granted permission to explore in the South China Sea, off the Natuna Islands, by the Indonesian authorities. Five American companies: Gulf, Marathon, Amoseas (representing Chevron and Texaco), Mobil and Esso had already signed production-sharing contracts with Indonesia's state oil company Pertamina for exploration in a vast area off the Natuna Islands. When the first contracts were signed, in October and December last year, Vietnam warned the foreign companies involved that they were going to operate in a disputed area. Vietnam and Indonesia have not yet reached any agreement on the delineation of the continental shelf boundary in the South China Sea.

Total Indonesia today also signed a contract for exploration covering a block in East Kalimantan (Borneo). A third contract was signed today by Pertamina with the American company Union Texas pertaining to the Tomori area in Central Celebes (Sulawesi).

CSO: 5200

INTER-ASIAN AFFAIRS

SRV MEETING WITH INDONESIA ON CONTINENTAL SHELF DEMARCATION

BK211426 Hanoi Domestic Service in Vietnamese 1145 GMT 21 May 80

[Text] The fifth meeting of experts of the SRV and the Republic of Indonesia to demarcate the continental shelves of the two countries took place in Hanoi on 15, 16 and 20 May 1980, in a cordial and friendly atmosphere. The spirit of cooperation and mutual understanding and respect was evident throughout the meeting. In this meeting, both sides agreed to the recommendation of their respective governments for holding the sixth meeting in Jakarta at a suitable time.

CSO: 5200

INTER-ASIAN AFFAIRS

BRIEFS

MOVE AGAINST LONGLINERS--Canberra: The Great Barrier Reef Marine Park Authority is seeking exclusion of Japanese longline fishermen from an area of the reef. The Minister for Science and Environment, Mr Thomson, said this in answer to a question from Mr B. Cohen (Lab, N.S.W.) in Federal Parliament. He asked whether Japanese longline fishermen had fished within the boundaries of the Capricornia section of the reef park since October last year and if so what fish were caught and what quantities. Mr Thomson said that there had been no reports of sightings or of catches, but the Japanese had been advised that when the present fisheries agreement between Japan and Australia was renegotiated later this year, exclusion from this section would be raised. [Text] [Perth THE WEST AUSTRALIAN in English 24 May 80 p 30]

CSO: 5200

AUSTRALIA

ECONOMIC SQUEEZE HITS STUDY OF OFFSHORE RESOURCES

Canberra THE WEEKEND AUSTRALIAN in English 24-25 May 80 p 4

[Text]

GOVERNMENT financial restraints have forced the Bureau of Mineral Resources to put off valuable offshore surveys from year to year since 1975.

The Department of National Development has told the Senate Standing Committee on Science and the Environment that there is a pressing need for basic data about Australia's vast offshore areas to help assess their mineral resources.

The Committee is inquiring into Australian marine science.

The submission said the area involved covered not only the Australian continental shelf and slope, but also the submerged margins of the Australian island territories and the Australian Antarctic territory.

There were extensive unexplored tracts in this whole area, the submission said.

However, it was known to contain most of Australia's proven reserves of petroleum and hold out the best prospects for further discoveries.

Significant reserves of other minerals were also believed to be present.

One effect of the financial restraints of recent years was that the proportion of the BMR's total budget devoted to field operations had diminished as salaries and other overheads

had continued to rise, the submission said.

Marine surveys had suffered particularly compared with other field work, mainly because of the high cost of chartering ships and the expensive equipment needed.

To mount a survey of economical size in any financial year would have denied funds to a large number of less expensive, but nevertheless important land-based projects.

The purpose of Government marine geological work in most advanced countries, was to acquire basic information needed to understand the geological framework of a particular region, the submission said.

This information was then used by industry as a basis for mineral exploration, and by governments to help assess the mineral resources, and manage them wisely.

"It is unrealistic to believe that the interests of a country are best served by leaving such work entirely to companies, whose motivations are usually related to short-term economic targets, and who have no incentive to collect data for which they get no return, or to disseminate information which may be of value to competitors," the submission said.

CSO: 5200

AUSTRALIA

TAIWANESE CLAM BOAT SAILORS ABSOLVED FROM POACHING CHARGES

Brisbane THE COURIER-MAIL in English 16 May 80 p 3

[Text] ... say.--Fourteen Taiwanese fishermen had a total of 28 charges against them dismissed in the magistrate's court yesterday.

Mr G.D. Joice SM dismissed the charges after he said he was not satisfied beyond reasonable doubt that the men had searched for and taken clam from the continental shelf.

Mr R.R. Brewer, of Brisbane, appearing for the Taiwanese, launched a submission immediately after the luncheon adjournment yesterday which led to the men's acquittal.

Mr Brewer said it could not be suggested that the 14 Taiwanese had any control over the ship they were on. He said the section of the Continental Shelf Act on which the prosecution relied could not include the fishermen.

Possession of clam on a ship above the continental shelf could only be used as evidence against a person in whose control and possession it was.

"In this case, it was the master of the vessel," he said. The prosecution could not point to any cogent evidence that the fishermen had searched for and taken sedentary organisms.

Mr Brewer said the Taiwanese were "friendless people, without a knowledge of English and in a foreign land."

"This is a court where

British justice is administered and I'm sure you will see it's done."

Mr Brewer said there was a case to answer for charges against the captain but on evidence put forward no jury would convict the boat's crew.

The crown prosecutor, Mr I. W. Bates, said every member of the crew had a criminal responsibility because of their roles in collecting the clam. Section 5 of the Crimes Act meant every man was just as criminally responsible as the captain.

Mr Bates said the fishermen were caught within the ambit of section 5.

The boat they were on was specifically a clam boat with fish clam aboard with all the necessary equipment and the only reasonable inference which could be drawn was that the Taiwanese had a case to answer.

Mr Joice agreed it was a reasonable inference but he was not satisfied on evidence that they actually took the clam from the continental shelf.

The captain of the junk, Tsay Wann Pure, was the only man not acquitted. He faces six charges.

The hearing will continue today.

CSO: 5200

AUSTRALIA

BRIEFS

SNAPPER FISHING CONTROLS--New moves to control snapper fishing in Cockburn Sound were foreshadowed yesterday by the Minister for Fisheries and Wildlife, Mr Masters. "The anomalous situation which exists where fishermen netting other species land big schools of snapper is one which is currently receiving detailed consideration," he said. Mr Masters said that fisheries officers had gathered considerable information on snapper netting in Cockburn Sound, particularly during the current season. Mr Masters said he expected that the information would be collated within the next few weeks. [Text] [Text] THE WEST AUSTRALIAN in English 21 May 80 p 3]

CSO: 5200

AGENCY TO COORDINATE MARITIME POLICY ADVOCATED

Madras THE HINDU In English 21 Apr 80 p 12

(Text)

MADRAS April 20

Vice Admiral M. K. Roy, Flag Officer Commanding-in-Chief, Eastern Naval Command, today suggested the creation of an inter-linked agency for coordinating maritime policy and ocean management.

Admiral Roy underlined the need for more effective planning, development and management of ocean resources based on the understanding that it was not merely sea power but rather the power of the sea that will be governing factor in our emerging relations with the seas around us. "The Navy will play the role of a maritime regulator on the best to protect the country's frontiers," he told a gathering of engineering students at the IIT, Guindy.

Referring to ocean engineering he said the country depended heavily on outside technology for mapping the extensive continental shelf, operating seabed vehicles and building offshore installations as well as constructing drilling ships. There was, therefore, urgent need to introduce more courses in ocean sciences in the universities and IITs for Ocean Engineering.

There was also need for an integrated study of marine environment and oceanography. He was happy to note that a start had been made by the setting up of the "Ocean Science and Technology Agency" (OSTA), under the Central Ministry of Science and Technology.

The extension of the exclusive economic zone to 200 km had added nearly 30 lakhs sq km of sea area to the country's jurisdictional responsibility. A spectrum of new relations had consequently emerged between the Navy and the State in view of the economic viability of the oceans,

the growing need to protect maritime interests together with geographical expansion of the continental shelf.

The increased commercial activities via the sea, the need for prevention of oil spillage and pollution as well as waste dumping were additional factors which 'merited a fresh look', as they had serious repercussions on proven breeding grounds.

The large number of foreign trawlers that found it profitable to poach in 'our' waters is ample proof of the inadequacy of our enforcement jurisdiction and the insufficiency of our maritime constituency,' he said.

Dr P. V. Indressan, Director, IIT, who welcomed Adm Roy endorsed the suggestion for spreading the teaching of ocean science in all the universities.

INDIAN OCEAN'S STRATEGY

Speaking to a gathering of IIT students at Guindy, Vice Admiral Roy said the warm Indian Ocean "provides a sanctuary in international waters for not only ballistic missile submarines but also for external maritime forces which endeavour to influence the political, military and economic postures of the weaker littoral States, many of which possess strategical mineral resources."

Vice Admiral Roy pointed out that in the last five years arms worth \$4.5 billion had been pumped into the region.

The region encompassing India continued to be of vital strategic due to raw material supplies important to the Industrialised Nations. Hence resources diplomacy had come to play an important role in the relations of the outside powers to the seas linking them to this region, Vice-Admiral Roy said.

MALAYSIA

MINISTER ON FOREIGN FISHING WITHIN ECONOMIC ZONE

BK211021 Kuala Lumpur International Service in English 0630 GMT 21 May 80

[Text] Fishing by foreign vessels within Malaysia's 200-mile exclusive economic zone will only be allowed if their activities do not affect the livelihood of local fishermen and the country's needs. Stating this in Kuala Lumpur today, Acting Minister of Law Tan Sri Abdul Kadir Yusof said permission to fish within the zone would be given to foreign fishing enterprises when there was an excess of fish resources.

He said any country which had in the past been fishing within the area which is now Malaysia's exclusive economic zone but beyond its territorial sea, [and which] wishes to fish in the zone, the government of that country must first negotiate with the Malaysian Government. The terms and conditions will include a limit on the catch, the area for fishing in, the number and size of vessels permitted, the type of gear and the fees payable.

Tan Sri Abdul Kadir said with the declaration of the zone Malaysia would now start deep-sea fishing ventures in the deeper waters which had in the past been exploited by foreign fishing vessels. The minister said foreign fishing companies could have joint ventures with Malaysian fishermen or agencies.

CSO: S200

NEW ZEALAND

BRIEFS

CALL FOR CONTROLS--Auckland, Thurs: An investigation into reported Russian dumping of New Zealand fish on to the Australian market was promised yesterday by New Zealand's Fisheries Minister, Mr D. MacIntyre. He made the promise after hearing complaints at the New Zealand Federation of Commercial Fishermen's Conference. Delegates claimed 11 containers of New Zealand fish caught by the Russians and rejected by the Americans had been shipped back from New York to Sydney. They said it was sold well below its market value because the Russians had been interested in obtaining hard currency. A call for further reduction in foreign fishing quotas was made at the conference by the federation president, Mr T. Collins. He said sales of fish by foreign vessels to the local market and in competition with locally caught fish were causing concern. "Foreign-owned vessels are catching fish in our zone with subsidised operations, processing this fish with cheap labour and selling it on the world market in competition with our own fish," Mr Collins said.--AAP. [Text] [Perth THE WEST AUSTRALIAN in English 30 May 80 p 17]

CSO: 5200

INTERNATIONAL AFFAIRS

CEMA COUNTRIES SIGN FISHING COOPERATION PROTOCOL

FL241504 Havana Domestic Service in Spanish 1400 GMT 24 May 80

[Text] The 19th meeting of the six-country Joint Commission for Fishing Cooperation Among CEMA-Member Countries has ended at the Atlantico Hotel in Santa Maria del Mar with the signing of a protocol for the 1981-85 5-year period.

Among other work, the protocol calls for the exploitation of pisciculture at sea and studies of the Antarctic to minimize the importance of fishing resources in that zone. Advances made in the development of technology and science, research, fishing methods and other matters were examined at the meeting.

The protocol was signed by (Micho Penkov) for Bulgaria, (Alfred Huette) for the GDR, Antoni Carrillo for Cuba, (Jozef Raj) for Poland, (Vintila Rosaru) for Romania and (Yuriy Vistrav) for the USSR.

CSO: 5200

PINDLING REJECTS ALLEGATIONS BY CUBA ON BOAT INCIDENT

Violates Bahamian Waters

PL191816 Nassau Domestic Service in English 1700 GMT 19 May 80

(Text) [Begin Pindling recording] This is a license issued by the National Institute of Fishing of the Republic of Cuba to its fishermen. It should be noted that the area in which fishing is authorized by the National Institute of Fishing is Zone No 129. What is Zone No 129? Where is Zone No 129? Questions are answered on the license issued to the (Jubilero) in January 1974 by the Cuban National Institute of Fishing. It clearly identifies Zone No 129 as the Bahamas. On this license the word Bahamas is written in in addition to the No 129. There can be and must be no doubt, therefore, that it is the clear and established policy of the Government of the Republic of Cuba to authorize its fishermen to fish in the Bahamas. (end recording)

During the news session the prime minister pointed out that a similar event occurred in 1975 when Cuban aircraft buzzed but did not fire arms at arresting defense force craft. Several fishermen arrested and fined in our coast at the time were also on the two Cuban boats that were arrested by HMS Flamingo on May the 10th. Prime Minister Pindling reiterated that all the facts unquestionably suggest that the Cubans were fishing on the Bahamian continental shelf, where some of them had fished before. They were surprised by HMS Flamingo just north of Santiago Key, tried to run but were caught some 5 miles south of the key. The prime minister concluded that the Cuban Air Force then came in Bahamian territory and murdered Bahamian Marines.

Jamaican UN Support Asked

PL191915 Nassau THE TRIBUNE in English 19 May 80 p 1

[By Gladstone Thurston]

(Excerpt) Jamaica may be invited to sponsor the Bahamas' protest to the United Nations Security Council against Cuba's military attack on the Bahamas last weekend.

"This whole barbaric affair may have to wind up at the United Nations Security Council after all," a government release said. "In this event it will be necessary for the Bahamas to have a member of the Security Council sponsor the matter."

"As Jamaica is a member of the Security Council, a member of the Commonwealth, and a Caribbean country it might be expected that Jamaica will be invited to be the sponsor," The government statement from BIS (Bahamian Information Services) said.

The release also went on to detail the events leading to the Cuban air attack which sank a Bahamian Defense Force vessel.

Boat Taken to New Providence

PIAG1725 Nassau Domestic Service in English 1700 GMT 16 May 60

(Excerpt) The Cabinet Office announced this afternoon that the Cuban fishing vessel captured last weekend in the Ragged Island chain by HMIS Flamingo has been brought to New Providence by the Royal Bahamas Defense Force. The Cuban vessel arrived at the Coral Harbor base shortly after noon today under the command of Senior Lt (Edwin Monroe.)

CSO: 5200

ISRAEL

BRIEFS

MAY EXPAND TERRITORIAL WATERS--Israel may expand its sovereign territorial waters. This was stated by Israeli Navy Commander Maj Gen Ze'ev Almog in an interview of the IDF weekly BAMA'HANE. According to Major General Almog, such an act is possible under international law and Israel would be allowed to go ahead if the proper legislation were enacted by the Knesset. The navy commander said the reason for this act stems from the frequent patrols of Soviet espionage ships along the Israeli shores. These boats sometimes are only 7, 8 or 12 sea miles from the Israeli coast. Almog added: "As the commander of the navy, one of the main problems I am facing on this issue is that by this behavior the Russians are not violating any international laws because Israel's territorial waters extend only 6 sea miles from the coast." [Text] [TA121002 Tel Aviv MA'ARIV in Hebrew 12 Jun 80 p 1]

CSO: 5200

SENEGAL

EEC FISHING AGREEMENT BEING WELL IMPLEMENTED

Dakar LE SOLEIL in French 2 Jun 80 p 3

[Article by P.M. SENE]

[Text] After an initial quick session, the joint commission set up by the Senegal-EEC fishing agreement expressed its pleasure over the smooth functioning of the agreement since its signing a year ago and noted with "satisfaction that no major problem had yet arisen."

This positive balance sheet, which was included in the minutes of the first session of the joint commission held in Dakar last Friday and Saturday, was also mentioned in the brief speeches given during the closing session by Maximilien Sagna, office manager for Robert Sagna, secretary of state responsible for fishing, and Rene Calais, EEC delegate to Senegal.

Under the terms of the reference agreement, Senegal concurred in permitting EEC ships to fish in its waters, in exchange for financial compensation. Let us note, however, that this agreement, the only one of its kind, was signed in "the spirit of cooperation resulting from the Lome Convention."

List of Proposals

Several points were included on the meeting's agenda. In the section properly called balance sheet of the application of the agreement, as regards the unloading of fish, the Senegalese side noted in the minutes that the obligations had been met in a satisfactory manner on the quantitative level but that at the qualitative level efforts should be made on the part of the owners of freezer trawlers. The EEC delegation formally recorded these objections.

For its part, the Community delegation called attention to certain problems concerning, for example, the high tariff rate applied to offloaded products and the transfer of the consideration in fish offloaded by the European shipowners. Senegal, according to the minutes, will examine ways to correct such problems. As regards most particularly the second point

raised by the EEC delegation, the Senegalese delegation proposed an accounts compensation procedure vis-a-vis the consigners to whom Senegalese industrialists would directly pay the value of the offloaded products.

Senegal demonstrated the same flexibility with respect to the view of the Community's delegation that there are problems of assuring in a constant way an adaptation by category of fishing capacities to available rights, as well as the possibility of granting certain payment facilities for royalties.

Senegal also presented to the Community delegation a list of proposals for scientific cooperation. These involve principally financing for research programs, the supplying of scientific equipment and assistance by European oceanographic ships and laboratories for exploration campaigns in Senegalese waters. The Community delegation will send a reply in 3 months on this point.

The Senegalese delegation also presented requests for study scholarships and on-the-job training and informed the Community delegation that it had undertaken a study called "Action Plan for the Development of Fishing in Senegal," which should result in the identification of specific projects.

Expressing a wish for the broadening of the fishing agreement, the Senegalese delegation requested the Community's assistance in the financing of some of these projects.

8143

CSO: 5200

SEYCHELLES

AIRCRAFT TO PROTECT TERRITORIAL WATERS PURCHASED

Victoria NATION in English 16 Jun 80 pp 1, 2

[Text] A potent addition to Seychelles' fisheries protection capabilities, a highly-sophisticated maritime reconnaissance aircraft, the Britten-Norman Defender, was officially handed over to the Department of Agriculture at Seychelles International Airport yesterday morning by the visiting British Under Secretary of State for Foreign and Commonwealth Affairs, Mr. Richard Luce.

Accepting the aircraft which was purchased through a UK/Seychelles loan, the Minister of State for Agriculture, Mr. Karl St. Ange, underlined the Defender's great importance in the efficient protection of our fishing stocks and the surveillance and policing of our exclusive economic zone (EEZ).

"The development of a viable fisheries industry is seen as one of the major hopes for the development and diversification of our economy," he said.

Seychelles had one million square kilometres of ocean, Mr. St. Ange continued, which contained large but finite stocks of fish.

"It is in our interest to exploit these resources rationally and scientifically," he added.

The size of Government investment in the industry, the Minister of State continued, made it vital that Seychelles did everything in its power to make it succeed. This included effective surveillance and policing of our fishing grounds against poachers, to which the Defender would be crucial, Mr. St. Ange said.

Handing over the aircraft, Mr. Luce said that it was part of a joint contribution and effort by the Seychelles Government and foreign aid to develop and exploit the country's sea resources and provide an important source of employment.

The Defender is a maritime reconnaissance version of the well-known Islanders used by Air Seychelles. Government pilots who took Ministers and other senior government and diplomatic staff on a tour of the aeroplane described it as a very remarkable little plane which was among the most sophisticated and advanced of its kind in the Indian Ocean.

The plane carries a crew of three and can take up to five people comfortably. It is equipped with parachute flares carried under the wings, has one of the most highly-advanced cameras in the world with a 386 kilometre-range (240 miles) radar and two extra detachable wing fuel tanks that gives it a minimum range of 2,252 kilometres (1,400 miles--allowing it to fly to Aldabra and back without refuelling), the aircraft cannot only take photograph at night time and from heights ranging from 8 metres (25 feet) to 4,572 metres (15,000 feet), but it can also prove invaluable in air-sea rescue operations by both day and night.

The aircraft is camouflaged in green and grey on the top and in bright blue underneath, is expected to be fully operational in about two weeks and already the training of qualified Seychellois so as to provide an all-Seychellois crew--the plane needs a pilot, co-pilot and navigator--is under way.

The Defender, which was made by Britten-Norman on the Isle of Wight, was flown to Seychelles by a government pilot and arrived last Tuesday.

Also present at the presentation ceremony were the Minister of Labour and Social Services, Mr. Philibert Loizeau, the Minister of Defence, Mr. Ogilvy Berlouis, the British High Commissioner, Mr. John Pugh and other senior Government and diplomatic staff.

CSO: 5200

SOMALIA

BRIEFS

FISHING COOPERATION WITH ITALY--Rome--A joint Italo-Somali fishing program designed to give a big push to the African State's fishing industry is slated as one of the results of a cooperation agreement signed here this week. The signatories at the Italian Foreign Ministry building were Somali Fishing Minister, Jaalle Osman Jama Ali and Italian Foreign Under secretary Giuseppe Zamberletti. After the ceremony, both ministers pointed out that fishing enjoys a position of priority in Somalia's plans for economic and social development. They added that the agreement represents a significant contribution to intensifying the traditional ties of friendship and cooperation between the two countries.--ANSA [Text] [Mogadishu HEEGAN in English 30 May 80 p 1]

CSO: 5200

INTERNATIONAL AFFAIRS

PROFESSOR URGES NORWAY GRANT ICELAND JAN MAYEN RIGHTS

Oslo AFTENPOSTEN in Norwegian 11 Apr 80 p 2

[Article by Professor Nils Orvik: "Sensible to Give Iceland Special Privileges"]

[Text] In April Norway will confront two negotiating tasks, one with Iceland over the economic zone around Jan Mayen, the other with the Soviet Union over the dividing line in the Barents Sea. That these are now being taken up at the same time has worsened Norway's negotiating position and emphasized the necessity for greater Norwegian concessions that the government seems to favor. As is known, the negotiations with Iceland begin next Monday.

While everyone knew that negotiations with Iceland over Jan Mayen must begin as soon as Iceland had a viable government, it came as a surprise that the Soviets suddenly should request new negotiations over the dividing line in the Barents Sea after the issue had been dormant for four full years. Some see it as the start of a new offensive in detente, to warm up the atmosphere after the cold winds from Afghanistan. Others see the unexpected Russian invitation as a result of Norway's firm resistance to Pravda pressure against advance storage of western weapons in connection with the NATO exercise Anorak Express. The possibility must be recognized that the Soviets may wish to utilize the Jan Mayen problem to achieve a negotiating position which will give Moscow the capability to influence the Norwegian-Icelandic tug of war over center lines and the continental shelf. Few will deny that there is a connection between the two dividing lines, but from the Norwegian viewpoint it would obviously be an advantage if they could be negotiated separately. Since we have always emphasized our desire for a quick settlement in the Barents Sea, and with Reiulf Steen's visit to Moscow stressing the importance of continuing negotiations, it was difficult for Norway to avoid the two events coming at the same time. So the Soviets have started with an important advantage, and with good prospects of winning more if Norway adheres to its expected negotiating position.

On the question of the western dividing line, is Norway in a better or worse situation than it was when the negotiations on Jan Mayen ran aground last fall? Regardless of the point of view, it is clear that the negotiating climate has worsened. Developments on the Icelandic side have led to increased demands, a harder government, and a greater national determination. The bright spot last year was the foreign minister, later prime minister, Benedikt Grondal. He and the majority of the social democratic leadership represented moderation on the Icelandic side. He was often a conciliator, but as long as he had the top position he had to act as a restraining influence on the more extreme nationalists in the coalition. In the new government there is the prime minister, Gunnar Thoroddsen, who has broken away from the Independence Party, without any regular party organization behind him. That means that Iceland's strong man through the most of the 70's, Olafur Johannesson, now minister for foreign affairs, will have decisive influence. It was he who formulated the hard Jan Mayen line--which last summer created fear of a capelin war in the familiar model of the 70's. He has turned over the chairmanship of the Progressive Party to Steingrimur Hermansson, now the minister of fisheries, but there can hardly be any doubt as to which one is the higher of the two. The People's Alliance has both the finance minister and the industry minister, and is therefore strong enough to drag the government just a notch over toward the nationalist position. But on the question Jan Mayen the two parties which support the government will adhere to the same line.

The new aspect of the situation is that this time there no longer is a vigorous opposition. The Independence Party, since the decline of Vice Chairman Thoroddsen, is in a leadership crisis which can cripple the party for a long time. Grondal and the nine other social democrats in the Alting are too few to carry out an effective policy of opposition. Even if Grondal personally should wish to refrain, he will face a national frenzy which during the past year has collected all the larger groups in Iceland behind the hard line which the government adheres to on the Jan Mayen matter.

The Icelandic demands are mainly these: In the first place, uncurtailed extension of the Icelandic 200 mile zone in the direction of Jan Mayen without any center line arrangement. In the second place Iceland demands special rights inside a future Norwegian zone which in principle gives them equal rights to exploit fishery resources. Up to now it has not been specified to what extent this means a Norwegian-Icelandic administration of the zone or if they intend to set up some sort of a bilateral arrangement similar to Svalbard where Norway has sovereignty while exploitation rights are shared with others. In both situations it means some form of joint government. The third demand is over the continental shelf. It is strongly claimed that Jan Mayen is located on the "Icelandic plateau," and is therefore an extension of the Icelandic continental shelf, a clear parallel to the Norwegian position on the Svalbard shelf. It is also worth noting that these three main demands have broad support from the far left to the far right. One of the Independence Party's top people, Alting representative Eyjolfur Konrad Jonsson, goes so far as to accuse Norway of having invaded a small neighbor's continental shelf (MORGUNBLADID 10 Jul 79). Earlier,

Undersecretary Bjorn Bjarnason, also from the Independence Party, gives his full support to the three demands (INT. POLITIKK nr. 4, 1979).

From Iceland's viewpoint the question of the center line is now a thing of the past. It is considered finally decided by the unilateral resolution, published in 1979, which introduced a 200-mile zone without center line limits. Now they claim that what should be negotiated are Iceland's rights outside the 200 miles, equal rights to fish in the Jan Mayen zone and the continental shelf.

That would be good if there could be seen as elements for negotiation, to give bargaining room. Such an interpretation is, however, hardly defensible. Since Norway adheres to the principle of the center line, one should be prepared this summer for an open conflict situation where Icelandic surveillance ships will get orders to drive Norwegian trawlers out of the contented area in the same manner that they did to Britain. In that way the capelin war can start in a few hours.

Seen rationally, neither Norway nor Iceland can afford to risk an open conflict in an area of such greater importance to the security of themselves and the western alliance. As the larger, older, and wiser partner it is Norway's responsibility to prevent that from happening. There are enough special circumstances to justify giving up the center line. The roughly 25,000 square km that Norway would lose is a very small portion of Norwegian sea territory. The loss of prestige and the protests of Norwegian fishermen are short-run phenomena. It would also be wise to give Iceland special agreements which can not have any effect on Norwegian sovereignty or which can not form a basis for joint government, which is unadmissible from the Norwegian viewpoint. The third demand must be rejected in the same firm, friendly way. Jan Mayen is a part of Norway with its own shelf. That does not prevent Iceland from receiving special favorable consideration in the development of the resources in the future.

It must be expected that Iceland will raise a storm of protest against such a Norwegian tactic. But if Norway will relinquish the center line principle and recognize Iceland's full use of its 200-mile zone, then Iceland has lost the confrontation weapon which they used in the cod war against Britain. To send surveillance ships on trawl-cutting forways in the Norwegian Jan Mayen zone would be too risky even for Iceland. In that case they would be in the same position that Britain was in during the cod war, and probably with the same result.

But such a distribution of winning and losing cards is what both Norway and Iceland should understand during the first round of the Jan Mayen negotiations. Iceland would get its full 200-mile zone and special fishing rights. Norway would get its zone, with a small indentation, and avoid a capelin war. The problems of the continental shelf would be set aside until later.

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FISHING INDUSTRY SEEKS TO ADJUST TO LEANER DECADE AHEAD

Oslo AFTENPOSTEN in Norwegian 14, 16 Apr 80

[Series of articles by Alf G. Andersen: "The End of Our Wealth From the Sea"]

[14 Apr 80 p 39]

[Text] The outlook is not bright for the future of our traditional fish. Ocean fishermen have a pessimistic view of our resources. They point to the drastic reduction of our stocks of our most common fish. Cod, herring, pollack, and mackerel have been plentiful, and at times it has seemed as though the sea was teeming with wealth. Now it is finished. The cod is endangered, herring is nearly wiped out, pollack has been too heavily fished, and the North Sea mackerel is in danger of not surviving the catches of recent years. No improvement can be promised in the near future. Scientists firmly believe that strict regulation must be continued into the future. But the picture is not entirely negative. The outlook for industrial fish is good. There is no danger for shrimp. In all it looks like the structure of Norwegian fishing must undergo large changes if it is to survive as a primary industry. Different types of fish must be sought, and fish processing plants must adjust to further processing of fish which previously have not been considered edible. We begin our series on Norwegian fishing in the 80's with a summarized overview of the resource situation which has been prepared by the Oceanography Institute of Bergen.

Situation Serious For Cod

The situation for cod in the Barents Sea is very serious. Oceanographers fear that the entire species can collapse in the mid-80's if quotas are not held at a reasonable level. It is also recommended that mesh size in the nets be increased from 120 to 155 mm. A Norwegian quota of 390,000 tons is recommended. The spawning stocks of Arctic cod are now drastically reduced.

There is sufficient knowledge today to permit a confident forecast that spawning stocks will be very low during 1984-86, when the weak year groups of 1976-78 become sexually mature, and the catches of young fish are reduced. That is also a reason for the quotas which are recommended for 1980.

Oceanographers claim that if there is no success in reducing the catching of immature young fish there is serious danger that the spawning stocks in the mid-80's will be so low that a breakdown of the species is likely.

Furthermore there is much fishing of young cod with equipment having larger net openings than is permitted.

The Arctic cod is today of great importance for fish processing plants, especially in north Norway, and a collapse of the cod species would lead to serious employment problems in future years.

Typical Industrial Fish

Sand eel and Norwegian pout are typical industrial fish which during recent years have become more interesting because other types of fish are being overfished. Oceanographers are optimistic about the stocks of sand eel and Norwegian pout in the North Sea. These types have become the basis for their own fleet which works around Rogaland and Vestland. The fish are delivered mainly to plants in Vestland and More. They are exclusively used as industrial fish, but research is going on to investigate their use as food fish.

Concern About Haddock

There is cause for concern about haddock. The stock has been sharply reduced, and the limit of 50,000 tons this year is about the maximum that can be allowed. That will lead to haddock being eliminated as a native of the North Sea in 1980. About 50,000 tons is about what is expected to be taken of cod.

Increase of Blue Whiting

There are no indications of a decline, on the contrary a certain increase in the stock of blue whiting is expected. A total stock of 6 million tons is believed to exist. This fish is also used for industrial purposes, but experience has shown that it is an excellent food fish. It is comparatively small, however, which means that much labor is required to process it as food.

Small Lobsters

The situation for lobsters is just as depressing as it has been for the past 10 to 15 years. Stocks are low, and the tendency is for them to decline further. Oceanographers believe that they will continue to be caught during the conservation period, and therefore it will probably not be possible to increase the modest stocks which have survived.

Brisking Like Last Year

These fish seem to be at the same level this year as last. So the take will be 400,000 tons total in the North Sea/Skagerrak/Kattegat, and in Norwegian fjords south of Stad it will be 70,000 to 80,000 tons.

Few Mussels for Now

Here we are at the beginning. Production is so little now that mussels do not appear in the statistics. But interest is growing fast. At several places production has begun, conditions for mussels in Norwegian fjords are very satisfactory, and there are high hopes for this species in the future—if the prices for the product are good enough. It is the question of price which has previously interfered with production. But optimists believe that mussels along the coast are of such excellent quality that it will be possible to compete on the international market. And if it is successful, it will be the beginning of a new and important industry in the Norwegian fjords.

Total Ban on North Sea Herring

A total ban is recommended. Investigations have shown that ever since 1969 the year groups have been smaller than average. After the investigation in 1979 it was shown that the 1977 year group was very small. That means that there is a continued deficiency in the replacement of North Sea herring and a build-up of the spawning stock will be delayed. In order for a total ban to have the desired effect it is also important that the catch of small herring with other fish is held to an absolute minimum.

Lots of Octopus

At the Oceanographic Institute they have a steadily growing belief in the Norwegian ink-spouting octopus which sometimes is found in large numbers along the Norwegian coast. Its appearance has been unusually abundant during the past couple of years, and it is not impossible to take 50,000 tons. Experiments have also shown that octopus is an excellent food fish. Its outstanding properties as a food fish should increase interest in octopus among Norwegian fishermen. The Japanese have also shown interest in Norwegian octopus and if we can hold that interest there can be a basis for a new commercial fish along the Norwegian cost.

Big Capelin Catch

When it comes to small salmon fishing, we have also badly deceived ourselves during recent years. New fishing techniques have made tremendous catches possible, and this has been done without a thought for future stocks. But now the capelin abundance is also finished. For the summer of 1980 and the winter of 1981 the stocks will be rather poor. That depends, however, on the 1977 and 1978 year groups, about which we do not have a clear picture. Capelin have a short life, and we depend on recent investigations to give warnings and recommendations.

Capelin in the Barents Sea are sought almost only by Norway and the Soviet Union. Also there is a species of capelin near Jan Mayen. In the autumn of 1979 and winter of 1980 it was recommended that 600,000 tons of capelin be the limit for Norwegian and Icelandic ships. But then came a signal from the Icelandic authorities about overfishing. The matter is the subject of negotiation. There is reason to note the increasing interest of the Japanese in capelin as a food fish. That will undoubtedly make capelin more interesting if the stocks can be maintained at a reasonable level.

Perhaps Too Little Herring

The stocks of Atlantic-Scandinavian herring have undergone a dramatic reduction from the 50's to the end of the 60's. In that time the stocks have been reduced from 7 to 10 million tons to almost zero. The herring epizode along the Norwegian coast lasted only a short time. An almost fantastic overtaxing reduced the stocks so far that even today catches can not be permitted of this herring. In the winter of 1977 a significant growth of spawning stock was observed, compared to the year before. Growth of stock gave a biological basis for fishing a limited quantity of spring-spawning herring. But the basis for the stock continued to be very weak, and the oceanographers were in no doubt that it still would take many years before the stocks were again large enough to produce a normal year group. Therefore fishing was not recommended. In the period 1977 to 1979 the spawning stock was again reduced. During these years there was relatively large attrition and the spawning stock got little increase of younger fish. It was therefore recommended not to fish the Atlanto-Scandinavian herring in 1980. If the stocks should again show a significant growth, a limited fishing of herring may be recommended.

Fewer Pollack

A certain reduction is also expected for pollack. That applies to fishing both south and north of Stad. Oceanographers believe that replacement has been steadily reduced since 1974. It is therefore possible that the existing stocks are too little to produce good year groups, and it is believed that it is a reasonable goal therefore to build up the spawning stock to a level of about 400,000 tons as soon as possible. This requires that the catches must be reduced significantly and regulation of Norwegian pollack fishing is therefore necessary. The most effective way will be to limit seine fishing and thereby spare the younger year groups.

We did not take the entire quota of pollack in 1979. That probably happened because the species is not as numerous as was believed, and because we have not been energetic enough in the North Sea. Pollack have not been so heavily fished there. On the other hand many young pollack were taken in nets along the coast. That means that the nets are not coming out to sea, and that is why the oceanographers want to have the net fishing along the coast severely limited, especially along Vestland. The young pollack will migrate out in the North Sea to spawn. But the Norwegian seiners can not go so far out and therefore they lose fish in this way. Norway is preparing to increase its trawling for pollack. The oceanographers however desire to increase the minimum size.

Mackerel Crisis

Mackerel fishing in the North Sea, which was previously so rich, is now practically finished--anyway for the coming years. The mackerel species has, like the herring and the cod, been exposed to greater influences than it can tolerate. While in 1969 740,000 tons were taken, oceanographers now say that the species will not survive larger than 50,000 tons in 1980. A catch of 100,000 tons from Skagerrak and the North Sea will mean that the spawning stocks will be reduced to 330,000 tons, and that is regarded as dangerously small. The mackerel in the North Sea is in other words endangered. The oceanographers recommend a total stop so that the stocks will have a chance to increase again. Even with a total stop of fishing there is no certainty that it will happen.

As for the western mackerel, since the situation for many parts of the industry is dark, there is reason to be pleased that the western mackerel, which goes west to the British Isles, may be a source of increased fish. Oceanographers are not sure whether it is a separate species, but it is a definite migration. A catch for 1980 of 335,000 tons of western mackerel is recommended. That will be a reduction of 100,000 tons compared with 1979. Last year there was heavy overfishing partly because the EEC countries do not have good control over their fishing. Also in 1978 there was overfishing. Norway has a rather large quota--35,000 tons--in the western areas, and this fish will be taken by ring-net boats which come from Vestland and other places.

A Little Too Much Crab?

In Norwegian households crab has come in where lobster was before--and there is reason to be happy that the stocks have not been depleted by the growing interest. There is no indication of a decline in crabs, on the contrary some believe that the stocks are too great.

[16 Apr 80 p 35]

[Text] The End of Overfishing

A government official is almost duty bound to believe in the industry that he is appointed to administer--even when the time are bad and the complaints are many. No one is surprised that the director of fisheries believes in a good future for the fishing industry. But his requirement to have faith when it applies to future visions must not necessarily be without reservations. And Fisheries Director Hallstein Rasmussen has studied the situation and is therefore an optimist with reservations. The optimism is caused by our having enormous possibilities in our area. The reservations, however, are that we must not again let greed destroy our livelihood.

"The fishing industry in the 1980's will first and foremost be marked by our again building up the overfished stocks, and the hope that both the authorities and the fishermen will follow an intelligent fishing policy! I have confidence that we will succeed. Here in the Fisheries Directorate we have in recent years noticed an increasing desire and understanding for the sometimes drastic actions which have been taken for building up again," said Rasmussen in a conversation with AFTENPOSTEN. "Even the fishermen, who notice these actions in their wallets, loyally comply with what must be done. Rightly enough, they protest and they express their dissatisfaction with the individual actions, it would be abnormal for them not to do so. But it never goes farther than protests, because after all they clearly understand the situation."

"What did we do wrong? How could we have gone so far wrong on such matters as, for example, stocks of cod? It was thought that they were relatively strong, and then suddenly fishermen were told to reduce their catch from 800,000 or 900,000 tons down to 350,000 tons."

"Yes, we made mistakes. However, the incorrect conclusion by the oceanographers was not that they interpreted the information incorrectly, but that they had information which did not cover the situation. So the analyses were built on a too optimistic basis."

"How long will the fishing industry be in a rebuilding phase?"

"I am afraid that in the worst case it can take a long time. There is nobody today who can prove exactly how long we must be especially careful. But I fear it can take 3 to 5 years to build up the Arctic cod again."

"And when that is done will everything be back as it was before?"

"No, the fishing industry will never be as it was. Our fishing will undergo large changes in the 1980's. In many ways we are facing a new era. I am fairly sure that we will succeed in building up the various fish species again. But when that is done, we should be through with the waste which we caused before. In the future we must take better care of our raw materials. Consumer fish must go to the consumer and must invest in high grade processing. That is a process which has already begun. Now that the raw materials situation is so difficult, we are investing in a higher grade of processing of both food fish and industrial fish."

"But the trawler fleet can not be laid up to wait several years for better times. During that time the capital expenses will have eliminated everything we have in trawlers."

"It is urgent to make decisions about the future of the trawlers, that must be done this year. Furthermore I do not believe that in the future there will be work for the entire trawler fleet which we have today, even if the fish come back again. We must expect that fishing will be more efficient and that we will therefore need fewer trawlers to bring in the same catches. Nobody knows what will happen to the trawlers, it is society which must

decide if they will be sold, condemned, or laid up to await better times. But regardless of which solution is chosen, we must realize that a reduction of the trawler fleet is necessary."

"How will future fishing be done?"

"If we wish to retain the dwelling pattern we have along the coast today, we must give coastal fishing priority. The trawler fleet does not fit in that picture, trawlers have not been a part of maintaining the smaller communities."

"How many millions will we continue to pour into the fishing industry? Now 900 million in support is needed, which amounts to 50,000 kroner per active fisherman."

"Subsidy policies do not fall under my authority and I do not wish to talk about the size of subsidies. I have seen the mentioned figure several times, a figure which I consider irrelevant. It is wrong to divide the millions by the number of fishermen. We must remember that the fishermen are only a part of the whole. Shipyards, service industries, and other operations live indirectly from fishing. Think also about the dwelling pattern. If we wish to continue that we must also continue to support fishing. Furthermore, we can not just turn off the equipment and then have it ready for good times later."

"Is there an increased interest in cultivating the sea?"

"I believe in the experiments in cultivation which are now going on, and I have no doubt that cultivation of fish in the sea has a future."

"Norwegian fishermen have previously not done much work on the high seas of the world. Is the shortage of raw materials going to force them to go farther out to sea?"

"I do not believe so. Because things have developed in such a way that it is increasingly difficult to reach fishing agreements with other countries. The various nations are adapting their fishing industries to the resources the countries themselves control."

"What will the situation for Norwegian fishing be like at the end of the 1980's?"

"I am convinced that fish will play an increasingly important role in the world's households. Fish from our area are qualitatively very high. But heretofore we have not been clever enough to process them correctly. During the 80's we will learn much, and I am confident that we will be able to satisfy even the most discriminating nations," said Director of Fisheries Hallstein Rasmussen to AFTENPOSTEN.

Now We Must Improve the Raw Materials

The raw materials crisis in the fishing industry is serious and the processing plants are being forced to make changes. The entire industry must learn to

live with the fact that cod, mackerel, herring, and pollack are no longer raw materials which can be carelessly hauled out of the sea. The 80's will be the decade when we in Norway learn to consume most of our raw materials, and to refine the fish to a greater extent than previously.

"We are working actively for new techniques. We now have a comprehensive cooperation among the processing side, the research side, and the sales side in order to find new marketable products based on the raw materials which are available," said Director Karl-Wilhelm Kirkan in the Norwegian Fish Processors Association. "This initiative has come from the Ministry of Fisheries and the preparations have advanced to a point that a committee has made recommendations which are now being studied in the ministry. Later there will be a working committee which will implement the recommendations into projects, and these will be turned over to project groups which will be in charge of processing, test production, and sales," said Director Kirkan.

In this way we in Norway have reached the point that many say we should have reached long ago--namely that we primarily regard all raw materials from fishing as human food--and deal with them accordingly.

Kirkan represents about 500 member firms which process 80 percent of every product of fishing in Norway. These firms will now be encouraged to process, for example, American plaice, polar cod, and white salmon as human food, and also to find new and more advanced ways of using cod, herring, and mackerel.

"This is a development which must come," said Director Kirkan. "The business is dependent on our finding highly qualified uses for existing raw materials. We must expect that the raw materials crisis will last 4 to 5 years, and we can not sit on the fence and wait for better times to come along.

"Cod fishing is now underway in Lofoten. How about a better utilization of the large catches of seasonal fishing? For example double freezing and long-term storage of pollack?

"There are profits to be had here. Double freezing is a unique method of insuring the availability of raw materials, and thereby regulate employment. But it is expensive, and many firms believe that they can not afford to invest in the freezers. We have therefore asked for a meeting with the ministry to find a solution to the economic problems.

Double freezing reduces unemployment, and creates regular employment. I believe that it is therefore reasonable that a portion of the money that is saved in unemployment payments should go for freezers. It is better for the national economy to keep people working than to have them on unemployment benefits. And from a purely human standpoint it is far more correct. Long-term storage of pollack is also a method which can insure ready access to raw materials. It only remains to determine the best and most economical methods."

"Have we been wise enough to cultivate the sea?"

"No, and now we are paying for it. Norwegian fish processors are now engaged in following up research in sea cultivation. We are closely following the cod project at the Oceanographic Institute, and our members' interest in processing salmon and trout is growing. Finally, there are those who are interested in cultivating mussels."

"Many claim that fish processing now faces a reorganization which will result in voluntary and compulsory restructuring of many firms."

"All this talk about restructuring of firms is frustration. We do not believe in any compulsory restructuring. We are also satisfied that there have been no indications from the authorities of such actions. On the other hand it is natural that there will be a voluntary condemnation of firms, and that can happen when one decides to invest in new activities."

Director Kirkan concedes that pessimism exists in the processing business, and that many struggle along with low profits and little capital. But there are also small rays of hope. In any case it appears that firms which carry on the conventional methods are doing better, while the fillet factories are having economic difficulties.

Finally: Now We Are Beginning to Cultivate the Sea

The fishing town of Austevoll outside of Bergen is becoming the Norwegian center for aquaculture. Many of the fishermen have gone in for cultivating mussels, and they are now planning a processing plant for mussels in this enterprising island community. A fishing trade school is also located there, so it was with good reason that the Oceanographic Institute chose Austevoll as the location for the aquaculture station.

It has been 18 months since the station was established, and they have made good progress with different projects, including production and breeding of salmon, trout, mussels, and long-term storage of pollack.

The station chief, Bjorn R. Braaten, told AFTENPOSTEN that they started with nothing to develop the technology of aquaculture.

"Until now there were no stations to give training in the business and research has been very limited. Within Norwegian fisheries research the only interest was in the fish in the sea. But now that several species are coming back, we are starting to understand the importance of cultivating the sea. In Asia they have understood it for a long time. In Japan, for example, the contributions are enormous. Half of all the money for fishery research goes to aquaculture. Large stretches of the coast are cultivated, and Japan is even breeding fish in the open sea."

Scientist Braaten says there is reason to believe that the natural conditions for aquaculture in Norway are much more favorable than in other coastal countries that we are usually compared with.

"The fjords give good protection, the Gulf Stream gives warmth, and the coastline is not polluted."

Interest in cultivating the sea is growing. A very good year for salmon and trout was 1979, and there are now good indications that the cultivation of mussels is soon going to make its breakthrough in Norway. Braaten said that only a collapse in the prices can prevent mussel cultivation from becoming very important in the years to come. The advantages of mussel production are many and large. Mussels need not be fed, they draw their nourishment from the sea. It is possible to plan long-range deliveries to the processing plants--which can not be done with fish. Finally, they can be cultivated in the quantities desired. A couple of years ago 100 tons of mussels were produced in Norway. Corresponding figures for Denmark were 30,000 tons, Holland 150,000 tons, and Spain produced a total of 250,000 tons.

At the aquaculture station at Austevoll they are now investigating methods, growth rates, and techniques for the cultivation of mussels along the Norwegian coast.

Braaten also said that conditions along the coast are good for the cultivation of oysters on a large scale. Oysters do not spawn along the coast because it is too cold, but the shells can spawn in warmed water and the young can later be set out. They are ready to harvest in about 3 years.

The station is also conducting research in the long-range storage of pollack. It is said that it is possible to keep them for months, and then use them whenever needed.

Fantastic Future

The year 1979 was a fantastic year for breeding salmon and trout. Especially for salmon, for which the prices were very good. So there is optimism at the start of the 1980's. Fish breeders expect continued growth, and that within a 5-year period it will be possible to increase their production from less than 7,000 tons to 15,000 or 20,000 tons.

The total quantity of fish bred is only a very small part of our total fisheries, which is a couple of million tons. But fish breeding is the only part of the fishing industry which is not supported by subsidies. The business takes care of itself, it is growing fast, and in the long term it can gain increasing economic importance.

There are many who want to try fish breeding. But the business is concessional, and in the Ministry of Fisheries there are now over 300 applications waiting to be dealt with. There have been 440 concessions granted for fish breeding, and in 1979 fish were delivered from 210 hatcheries. The reason why there are no more hatcheries in use and why the ministry is reluctant to issue many new concessions is the shortage of hatchery-produced fish for stocking. It is not difficult to get a concession for a hatchery, but it takes time before these can deliver, and the shortage of fish for stocking will last for a while longer.

Production of salmon and trout have increased steadily since 1970. Then there were 450 tons of trout produced and 150 tons of salmon. Last year 2,700 tons of trout were produced, and 4,000 tons of salmon. Production of salmon has overtaken that of trout, and the direct price of large salmon is at a record high. Last year the direct price of large salmon reached 75 kroner per kg.

Production of hatchery fish is increasing rapidly, but in terms of the world's production we are only pygmies. The largest fish breeding nations are in Asia. China alone produced 2.2 million tons of hatchery fish last year. Japan and India also come up high on the list.

We do not see much of our hatchery salmon, because 90 to 95 percent of it goes to export, and the largest customers are in West Germany, England, and Denmark. Mostly we sell the salmon as raw material, but interest in further processing in Norway is increasing. In the business, however, there is not much desire to invest in smoking facilities along the coast since it is the smoking facilities on the continent which are our best customers.

Even the greatest optimists do not believe that the record high prices will hold forever. Eventually we must expect increased competition from Scotland and Canada. But that does not prevent the fish breeders from having great confidence in the future. Government authorities are also positive about it.

Many years of overfishing of cod creates great problems for our fishing and processing industries. And now it is cod which can be the salvation for our fisheries in the future. If it goes as the scientists hope it will, and as they are working for, the cod will in a few years be decisively important for the industry.

At the aquaculture station at Austevoll they are trying to extract the last secrets from the cod. And if that succeeds, and we are at the same time ready to put theory into practice, the cod will return in quantities which we dare not dream of today--and right outside the kitchen door.

The station continues the works which other scientists began. In the last century G. O. Sars experimented with young cod. The Oceanographic Institute has also been investigating the cod for a number of years. The cod has been studied at the biological station in Flødevigen, and they have also been studying it at the Fisheries High School.

At Austevoll experiments are going on with cultivating cod. But contrary to breeding salmon and trout, humans only participate in the first days or weeks of the cod's life. Then it is set out in the fjord to grow up to be big and fat.

"But we are confronted with a time-consuming, difficult, and often unprofitable work, and today we have no guarantee that we will succeed," said scientist Ingvald Huse.

"We catch the parent fish out in the fjord, off the station. We take the roe from the parent fish. Normally very few of them survive. From a spawning Lofoten cod we expect that 2 or 3 young out of 100,000 will grow up to be food fish. The rest are destroyed. But if humans participate in this critical stage and create the right conditions, we can reduce the loss of the young substantially. We hope to be able to increase the chances of survival significantly, perhaps from .02 per thousand to about 10 per hundred. We expect that about half of the survivors will grow up to be food fish. Theoretically this means that a full-grown Lofoten cod should produce about 250,000 food fish!

The aquaculture station is not only trying to develop a method for the cultivation of young fish. It is also important to develop a technology which is rational, and so simple that it can be used by non-professionals.

But it will be a long time before the goal is reached. The leader of the station, Bjorn R. Braaten, does not believe that it will be possible to offer edible results before 5 or 10 years. There are also doubters who believe that the goal will be very difficult to reach. But facts testify to the advantages of the project.

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NORWAY

BRIEFS

SVALBARD FISHING REGULATIONS--Oslo, 14 Apr--The Ministry of Fisheries has published new regulations for fishing at Svalbard. They include increasing the minimum for cod and haddock, increased size of mesh in nets for trawling shrimp, forbidding the use of floating trawls when fishing for cod and pollack, and increasing the size of mesh in nets for trawling code after 1 Jan 81. The regulations apply for both Norwegian and foreign fishermen. There have been regulations established for the Svalbard area for a long time. They apply both to Norwegian and foreign fishing in the Norwegian economic zone in the northern areas, and in the Soviet zone of the Barents Sea. [Text] [Oslo AFTENPOSTEN in Norwegian 14 Apr 80 p 7] 9287

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